SAILS
Impacts to Algorithms
Build 14.0

Radar Operations Center
www.roc.noaa.gov

SAILS Impacts to Algorithms

- Output of some volume-based algorithms will be impacted by the SAILS cut

- Consistency in the output will be disrupted for data below the SAILS cut vs. above it
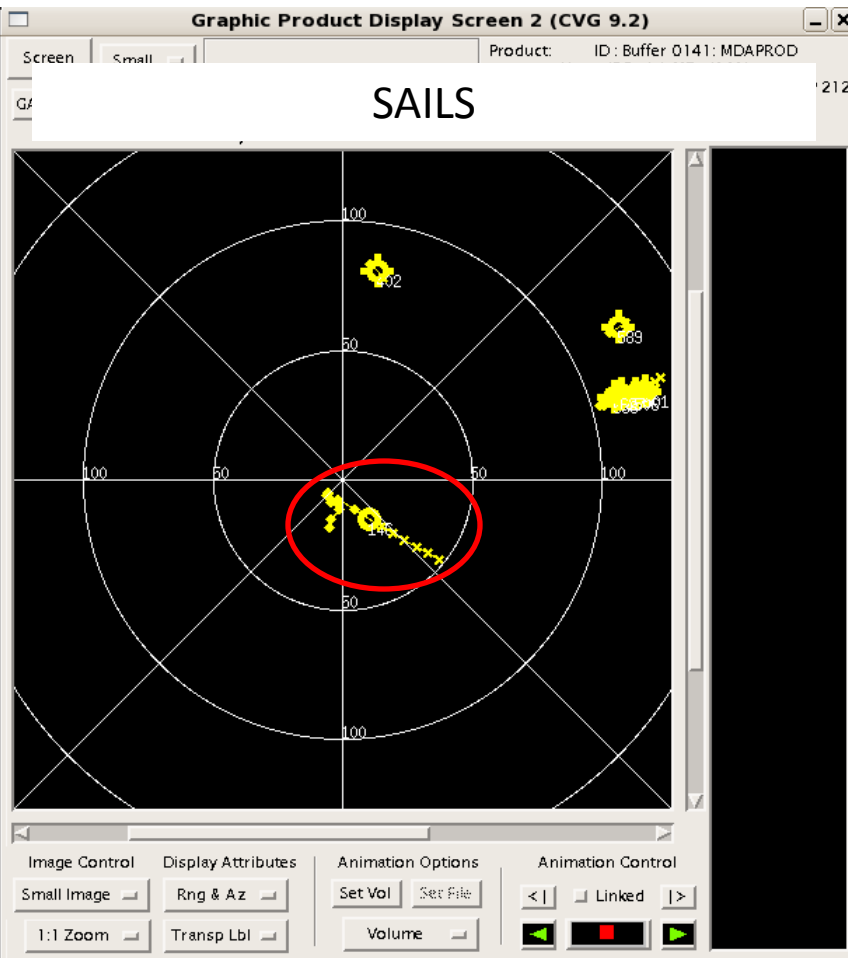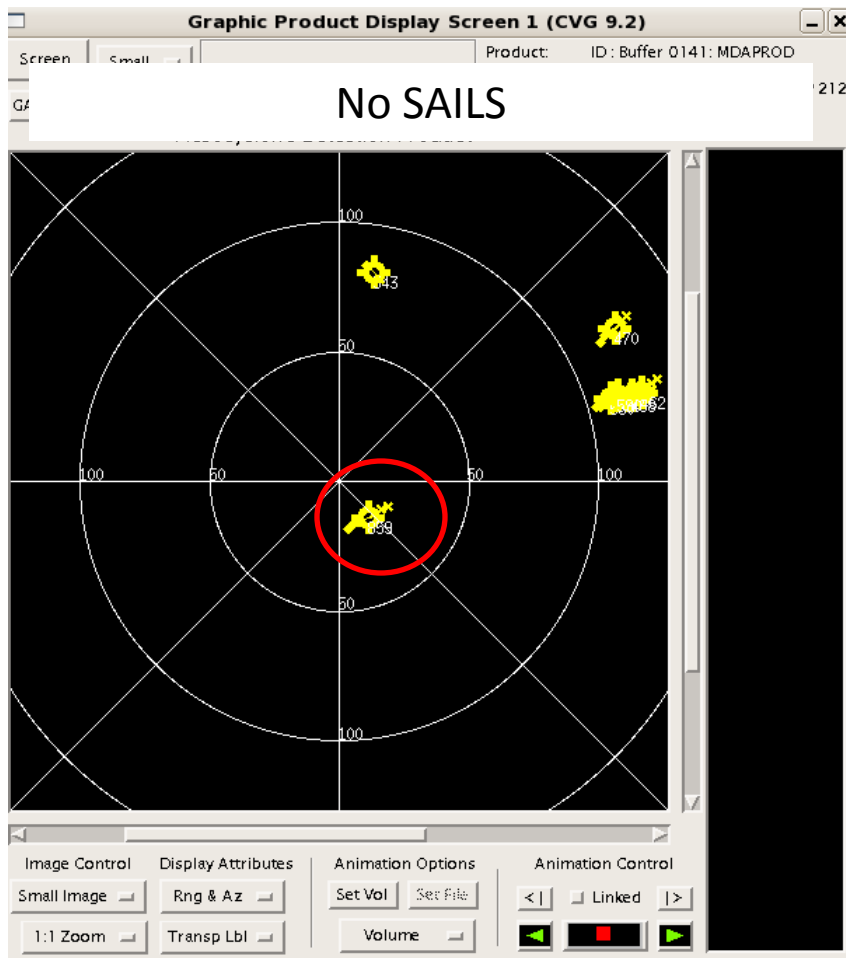
SAILS Impacts to Algorithms

- Impacted algorithms include:
  - MD, DMD
  - TRU
  - VIL, DVIL
  - VWP

MD/DMD Impacts

- MD/DMD
  - When using SAILS during an event, MD/DMD detections may show erroneous attributes including AZRAN, motion, and depth

  - 2D features from elevations before the added SAILS scan will not be associated with 2D features after the SAILS scan

  - Will primarily impact features closer to radar since they will be detected at more elevation angles

MD/DMD Impacts

- MD/DMD
  - Depending on depth of features after they are bisected by SAILS cut, some 3D features may be added or removed, and misclassified as low top

Graphic Product Display Screen 1 (CVG 9.2)

Screen Small | Product: ID : Buffer 0141: MDAPROD

Graphic Product Display Screen 2 (CVG 9.2)

Screen Small | Product: ID : Buffer 0141: MDAPROD

Image Control Display Attributes Animation Options Animation Control

Small Image   Rng & Az   Set Vol Set File   <| □ Linked |>

1:1 Zoom   Transp Lbl   Volume

Image Control Display Attributes Animation Options Animation Control

Small Image   Rng & Az   Set Vol Set File   <| □ Linked |>

1:1 Zoom   Transp Lbl   Volume

Tabular Alphanumeric Block - Screen 1

Previous Page Next Page

MESOCYCLONE DETECTION ALGORITHM
RADAR ID: 562   DATE: 04/03/2014   TIME: 02:04:00   Avg dir/spd: 219/ 24

CIRC ID	AZRAN deg/nm	SR	STM ID	LOW LEVEL RV	DV	BASE	DEPTH kft	STMREL%	MAX kft	RV- kts	TVS	MOTION deg/kts	MSI
462	074/122	9	A2	37	44	<16	>24	57	21	37	N	229/ 32	4347
468	074/118	8	A2	38	57	<15	>23	79	15	38	N	254/ 31	3661
343	010/ 81	7	T0	42	46	< 9	>15	52	9	42	N	316/ 39	3448
530	073/109	6	A2	29	33	<14	>21	74	18	30	N	237/ 33	3110
590	073/112	6	A2	38	37	<14	>22	78	14	38	N	240/ 25	3057
859	141/ 18	5	H1	45	45	< 1	>22	77	3	56	Y	240/ 35	3995
470	061/122	5	V1	24	37	<16	>24	57	16	24	N	232/ 26	2275

Tabular Alphanumeric Block - Screen 2

Previous Page Next Page

MESOCYCLONE DETECTION ALGORITHM
RADAR ID: 562   DATE: 04/03/2014   TIME: 02:04:00   Avg dir/spd: 229/ 25

CIRC ID	AZRAN deg/nm	SR	STM ID	LOW LEVEL RV	DV	BASE	DEPTH kft	STMREL%	MAX kft	RV- kts	TVS	MOTION deg/kts	MSI
501	074/122	9	A2	37	44	<16	>24	57	21	37	N	229/ 32	4347
506	074/118	8	A2	38	57	<15	>23	79	15	38	N	254/ 31	3661
402	010/ 81	7	T0	42	46	< 9	>15	52	9	42	N	316/ 39	3448
588	073/109	6	A2	29	33	<14	>21	74	18	30	N	237/ 33	3110
627	073/112	6	A2	38	37	<14	>22	78	14	38	N	240/ 25	3057
146	145/ 19	5	H1	31	31	6	17	59	9	37	Y	301/ 62	3100
580	061/122	5	V1	24	37	<16	>24	57	16	24	N	341/ 40	2275

MD/DMD
Considerations and Workarounds

- Verify strength and depth by incorporating base data interrogation into the warning decision process

- On AWIPS, you may choose to enable or disable display of "Overlapping Features" via the Radar Controls window
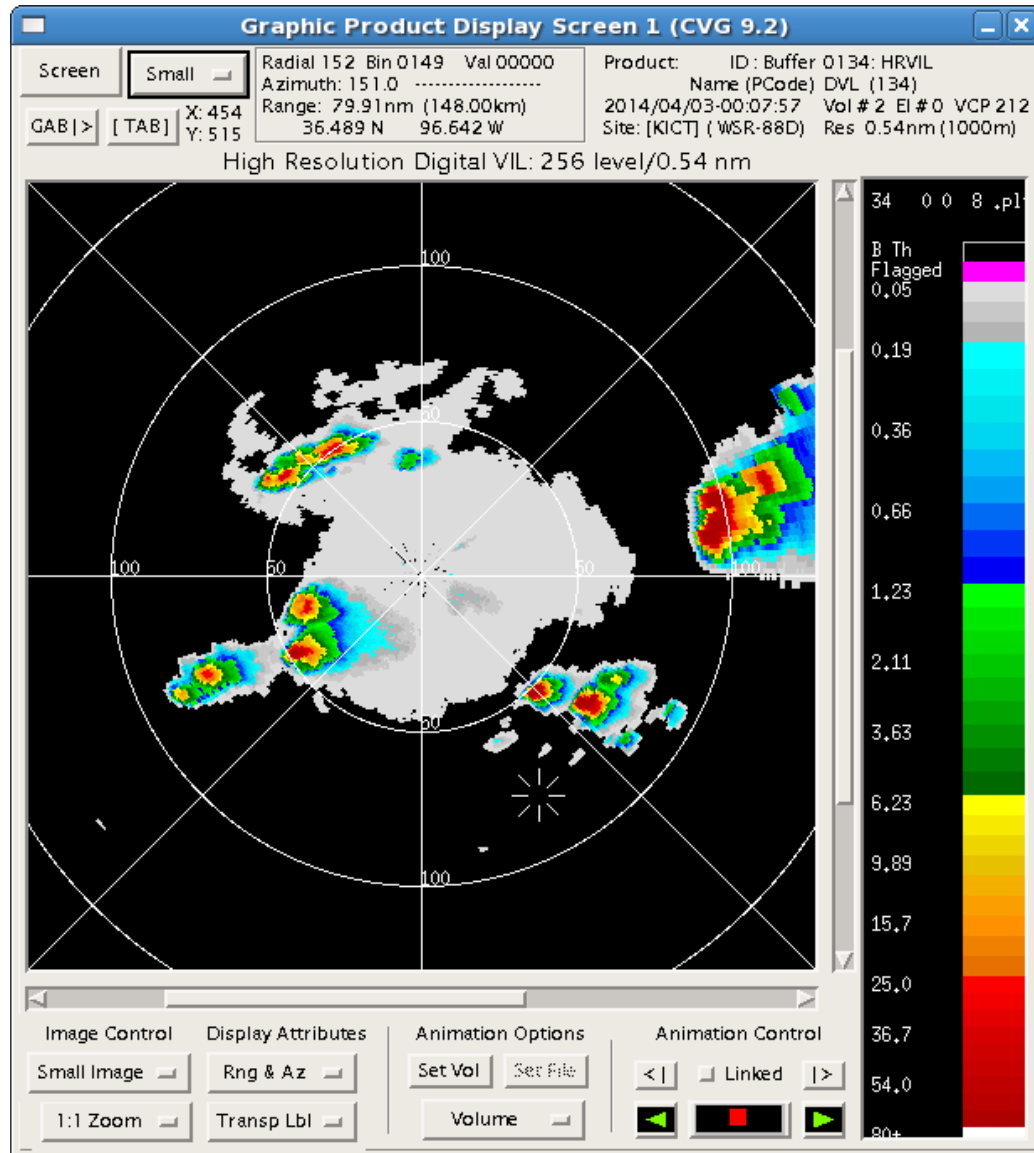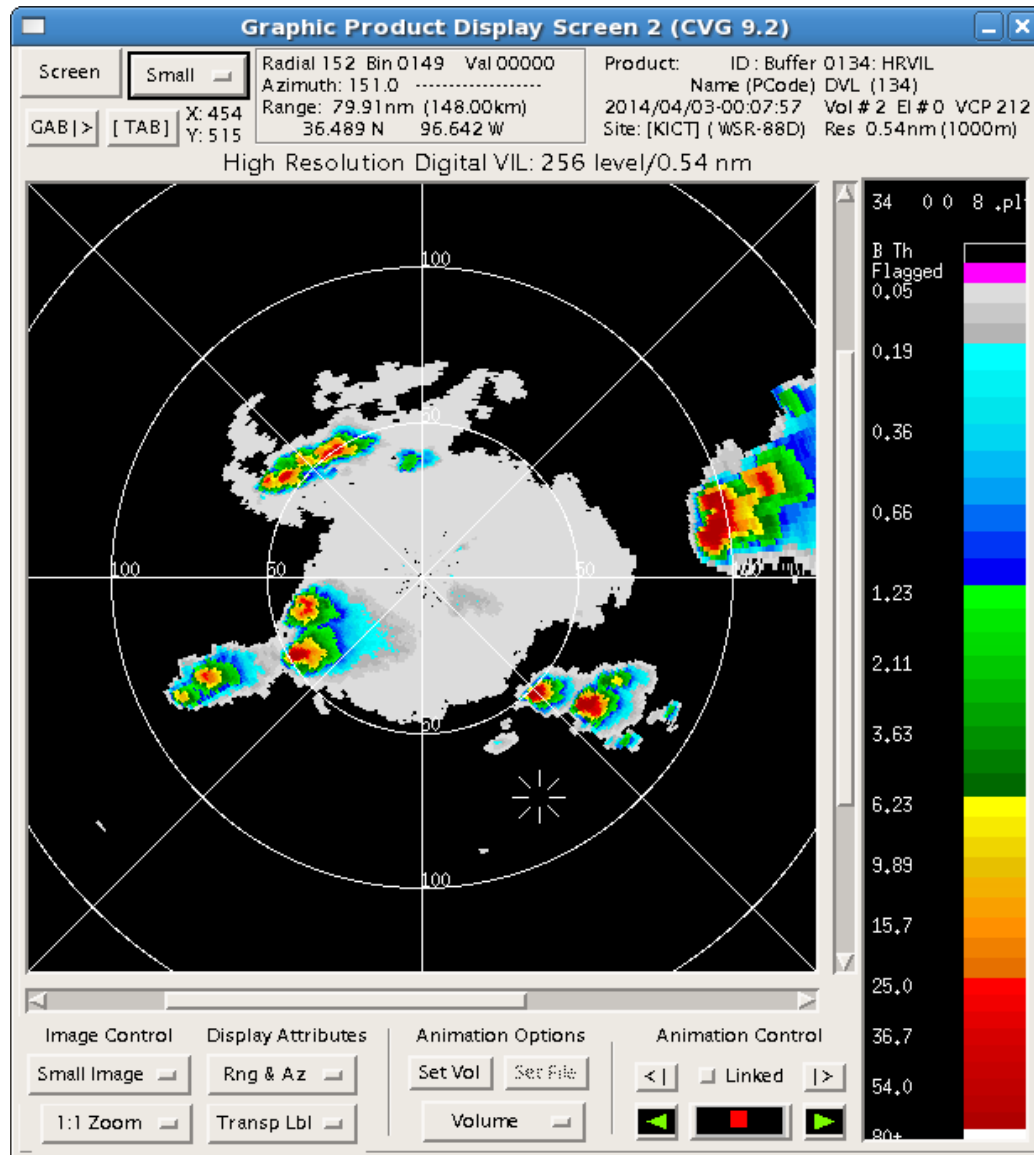
TRU
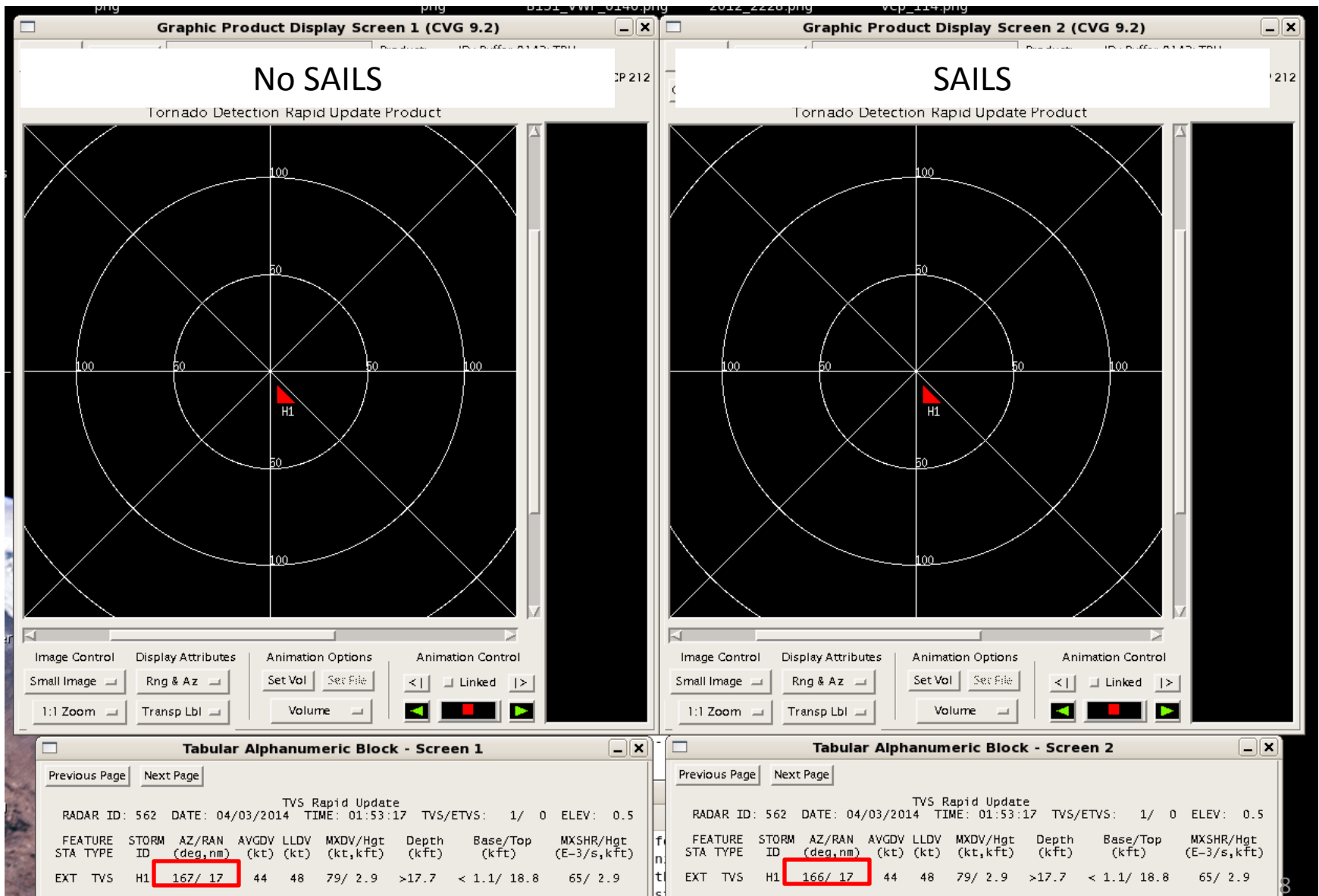
DVIL and VIL

- Limited impact to DVIL/VIL

- Some "cores" of DVIL/VIL may be slightly lower in value with SAILS than without
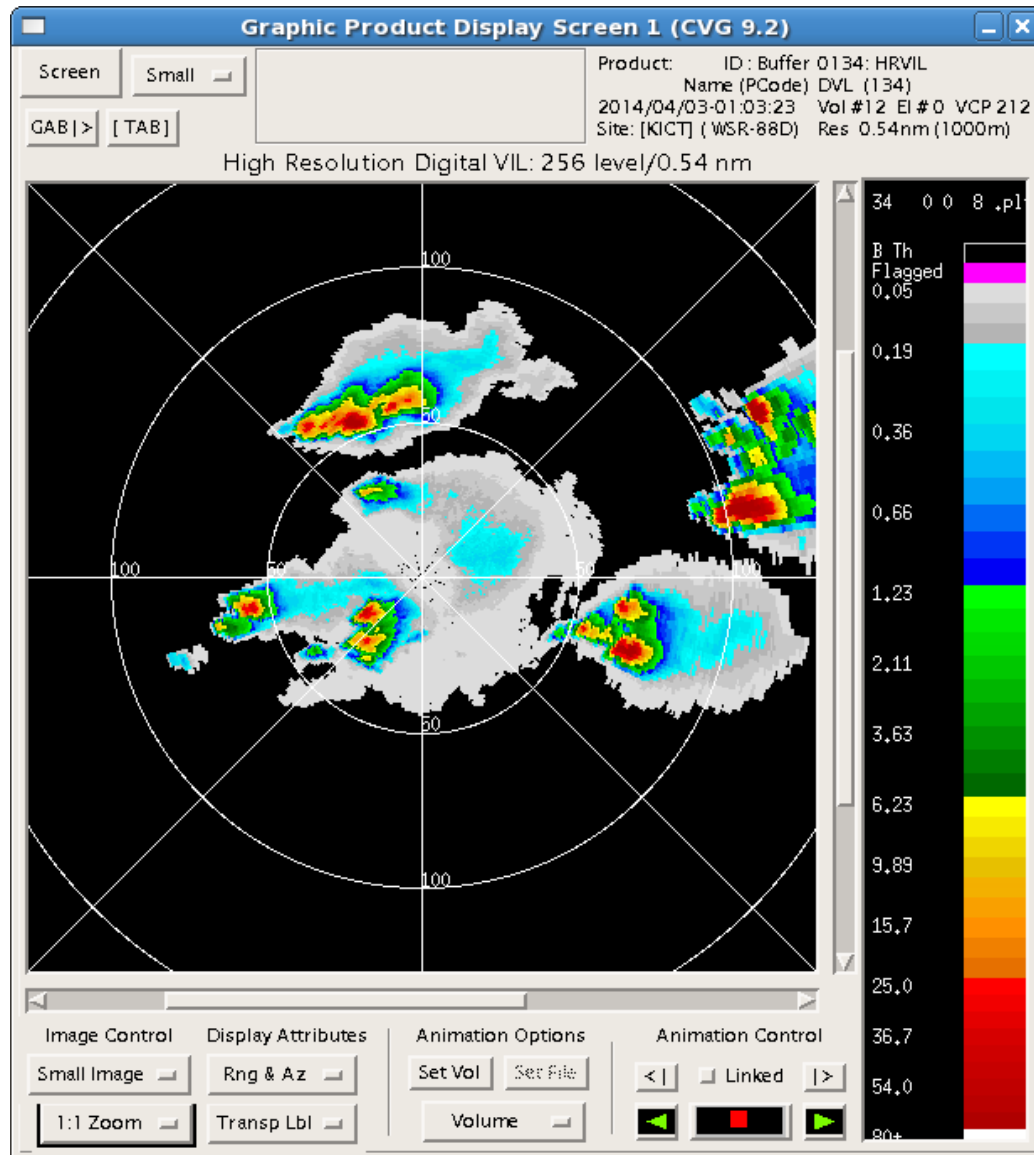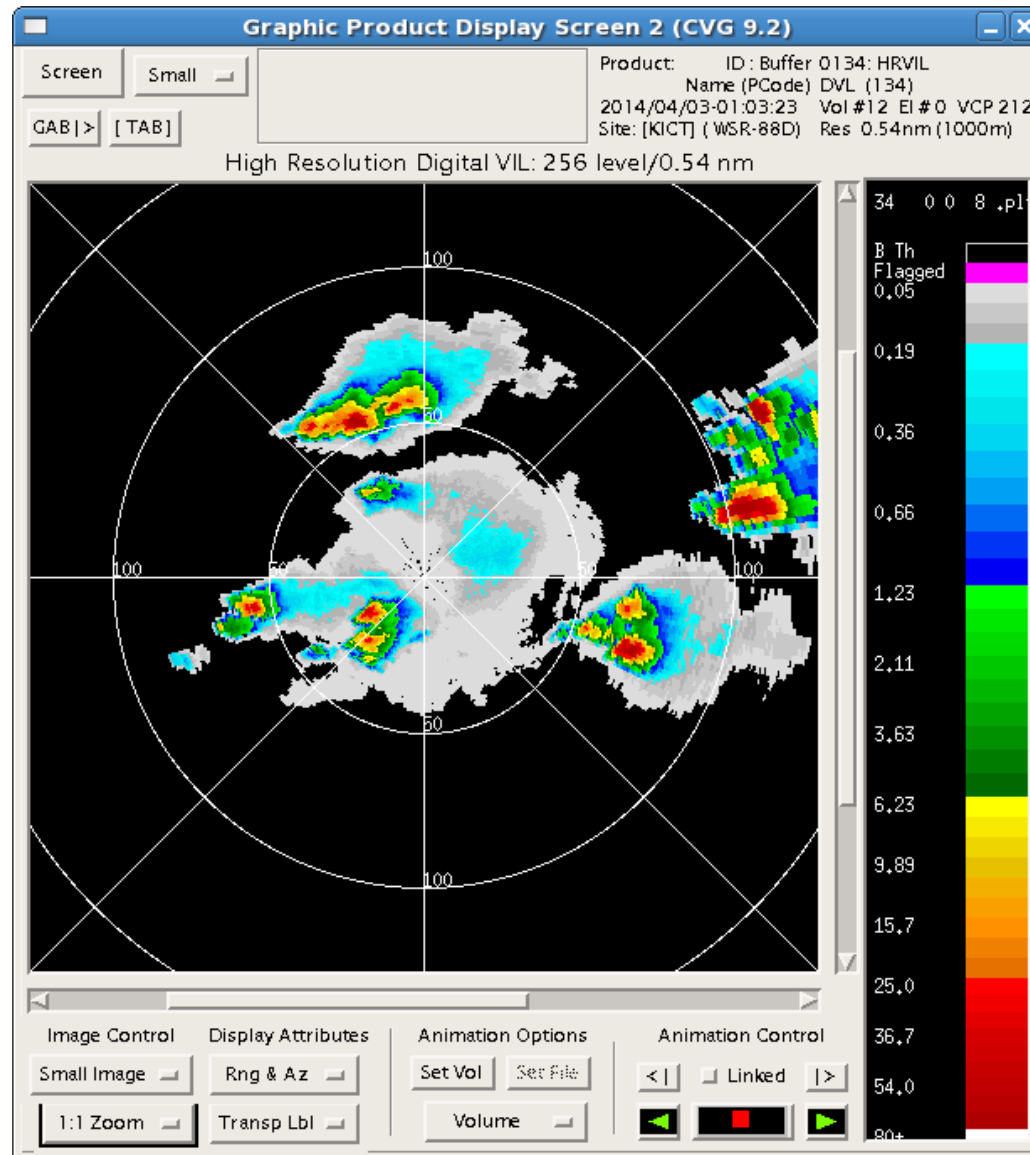
DVIL Example 1

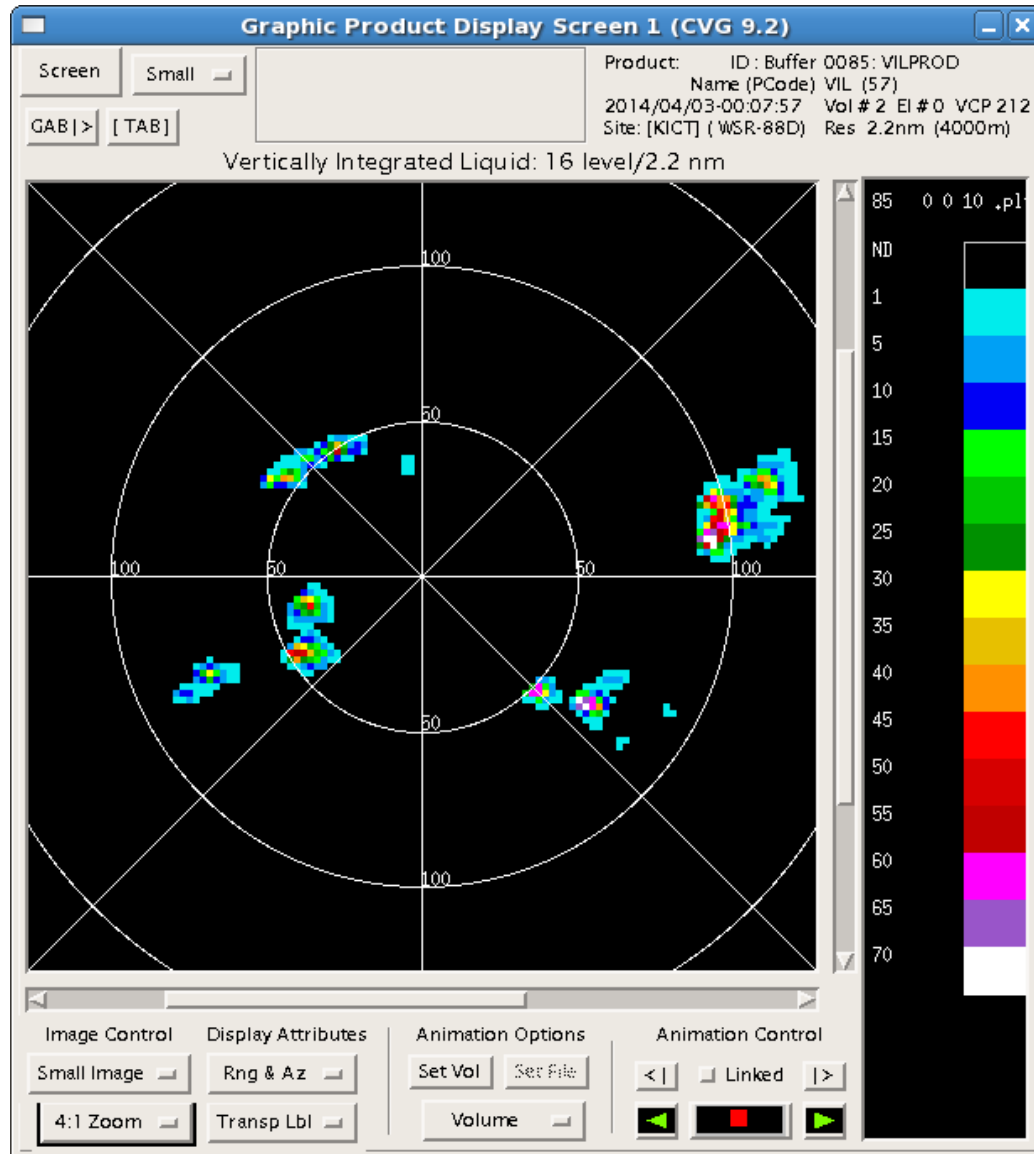# DVIL No SAILS

DVIL SAILS
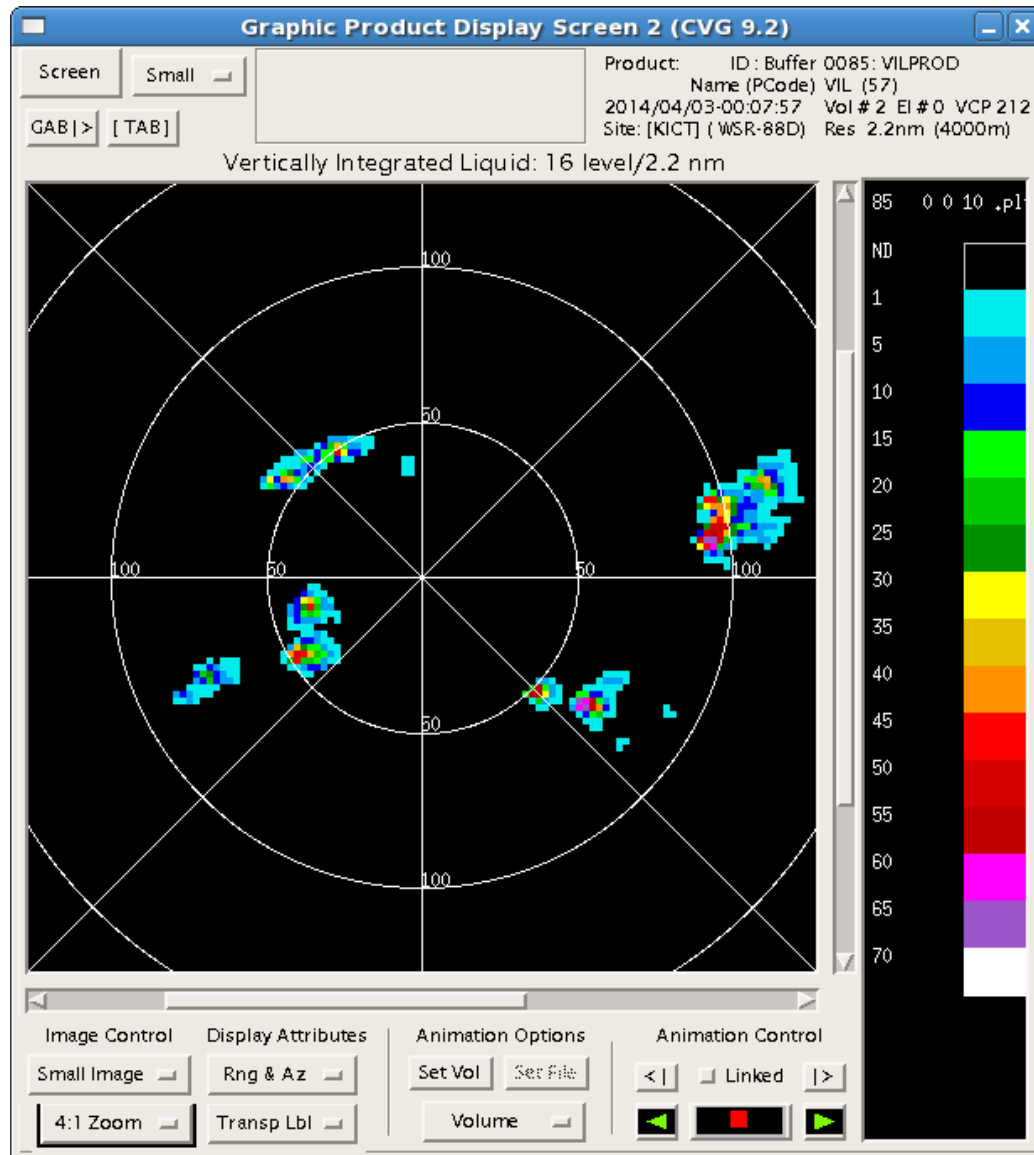
DVIL Example 2

DVIL No SAILS

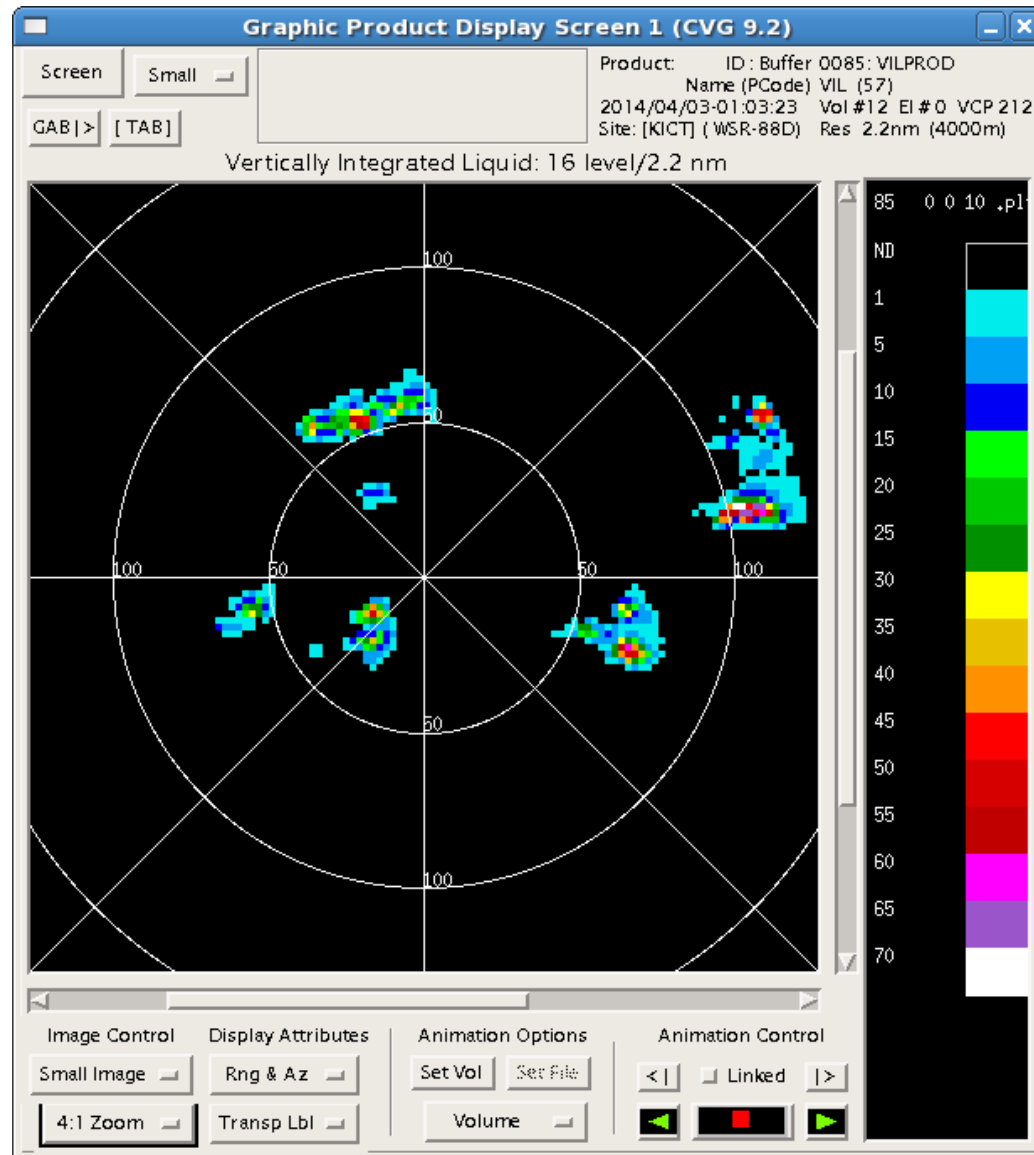# DVIL SAILS

VIL Example 1
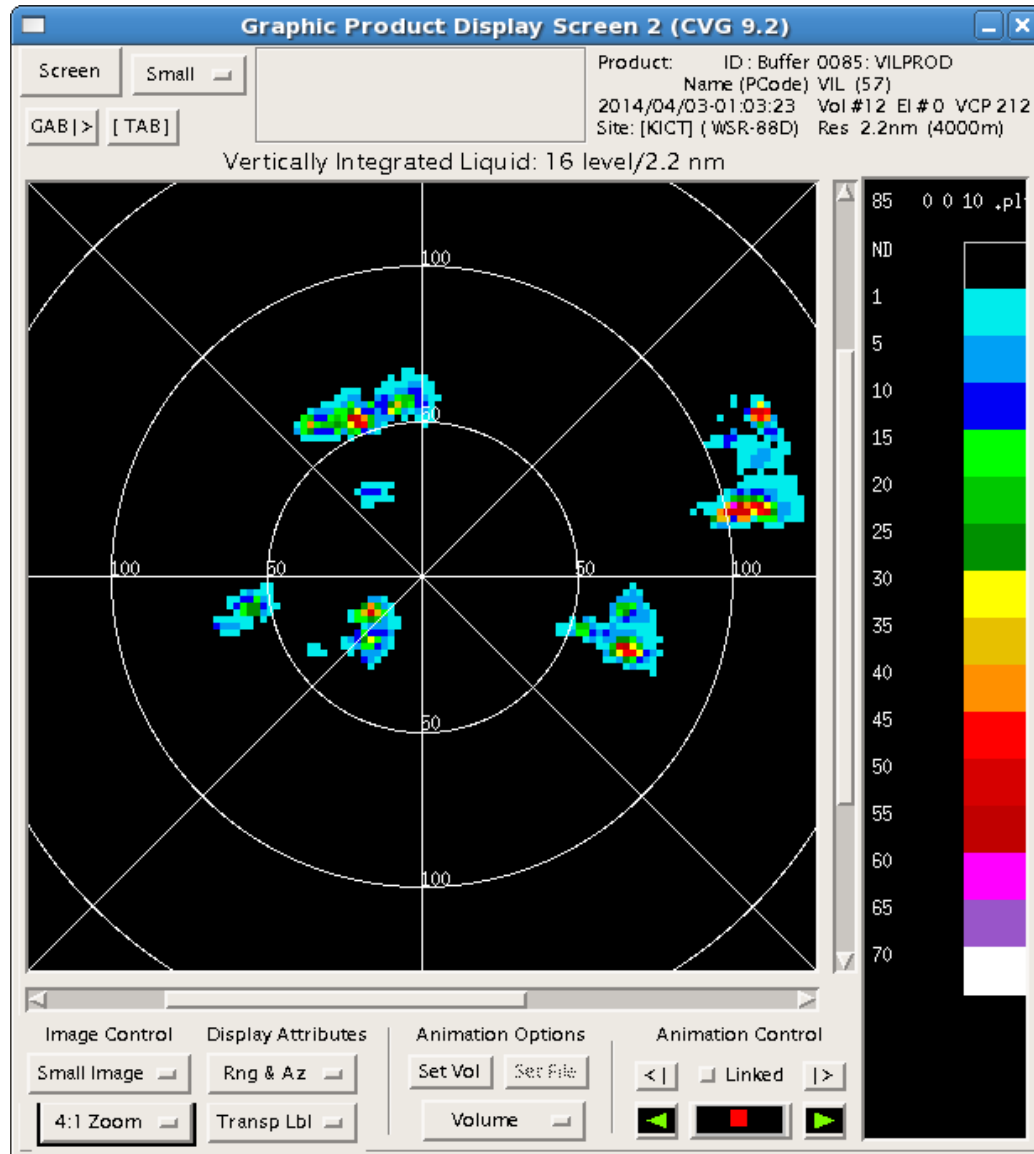
VIL No SAILS

VIL SAILS

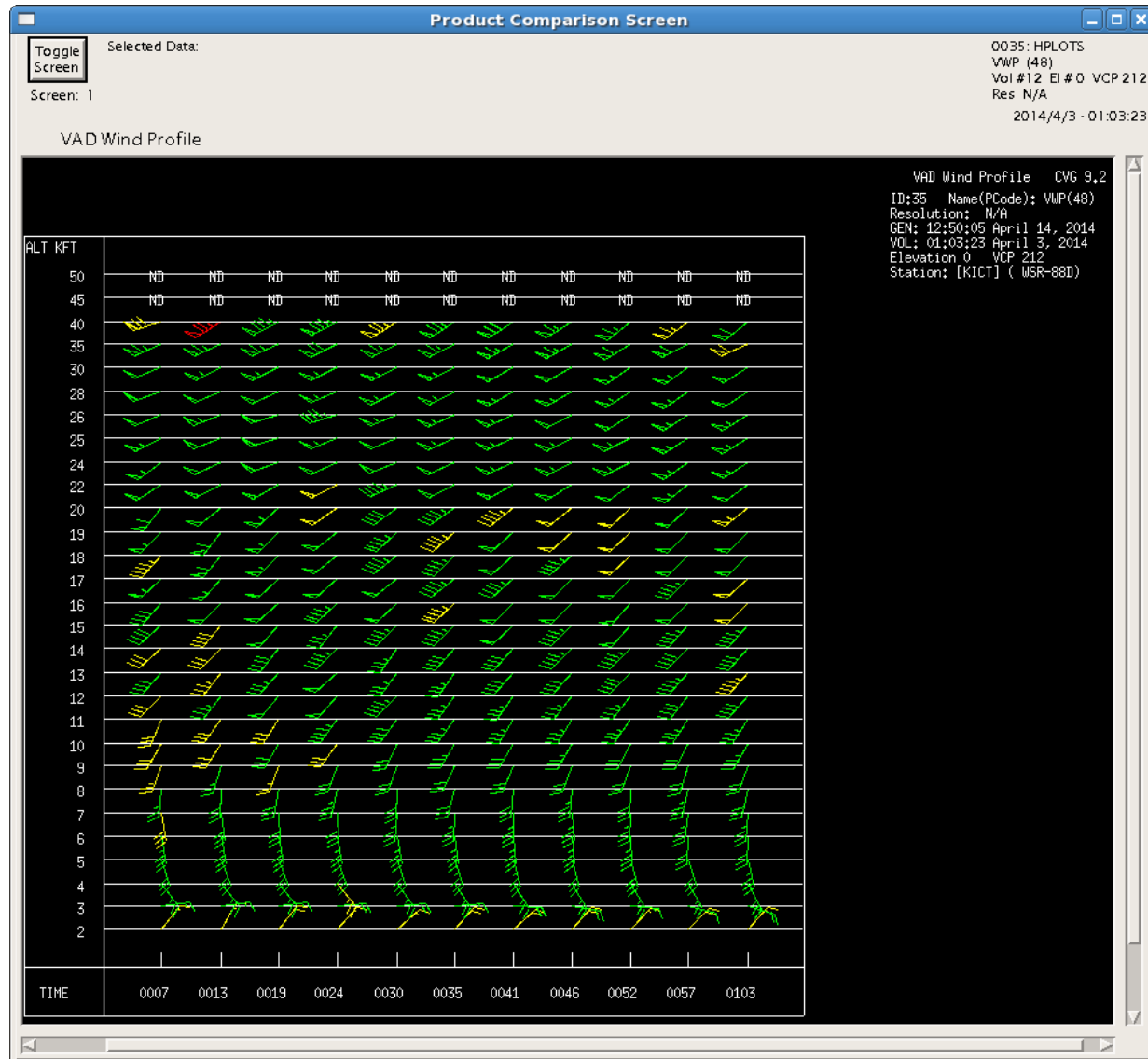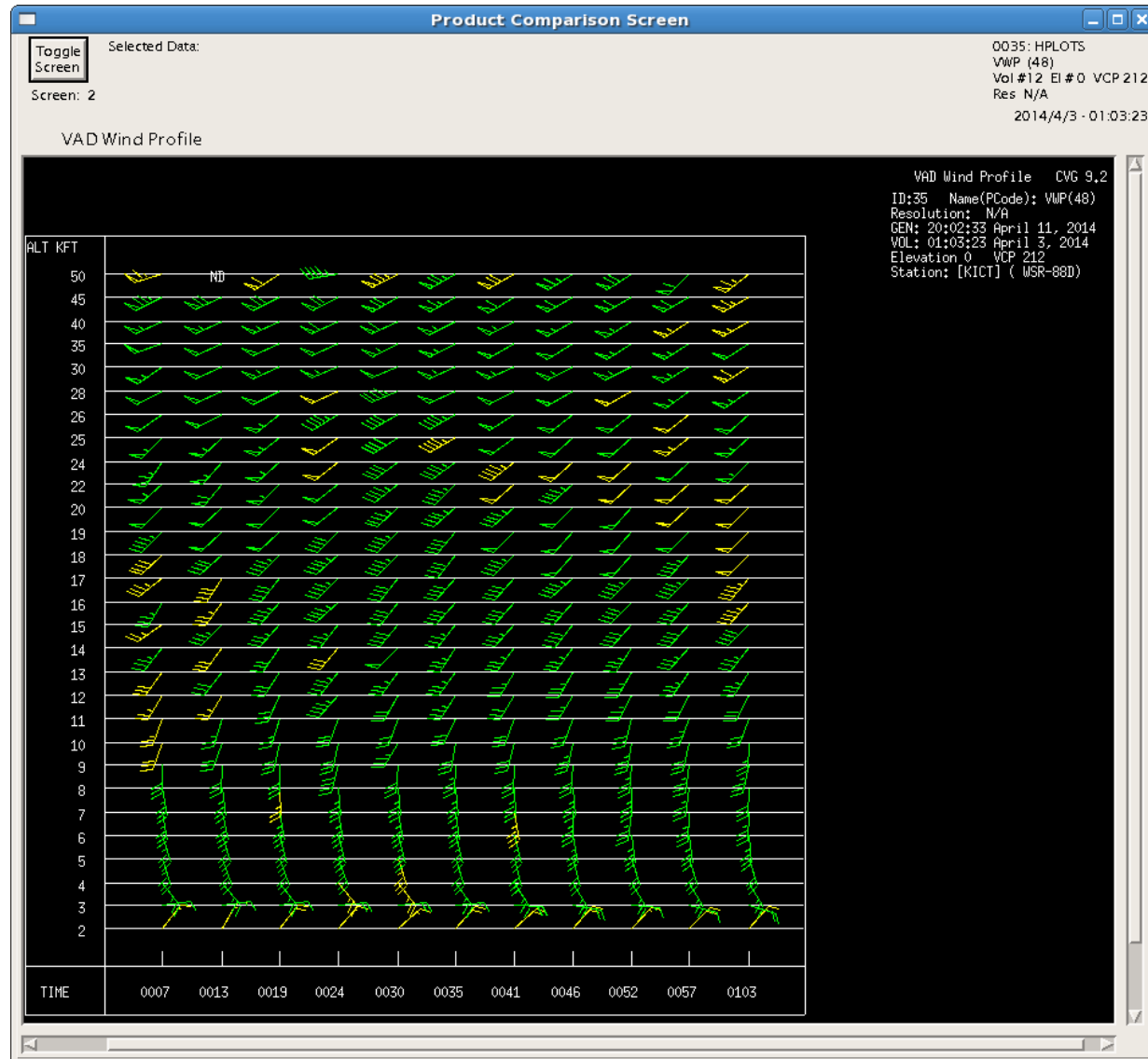# VIL Example 2

VIL No SAILS

VIL SAILS

VWP

- Some shifts in wind direction and speed throughout the profile

- Forecasters should be aware of SAILS impacts when using VWP for wind profile diagnosis
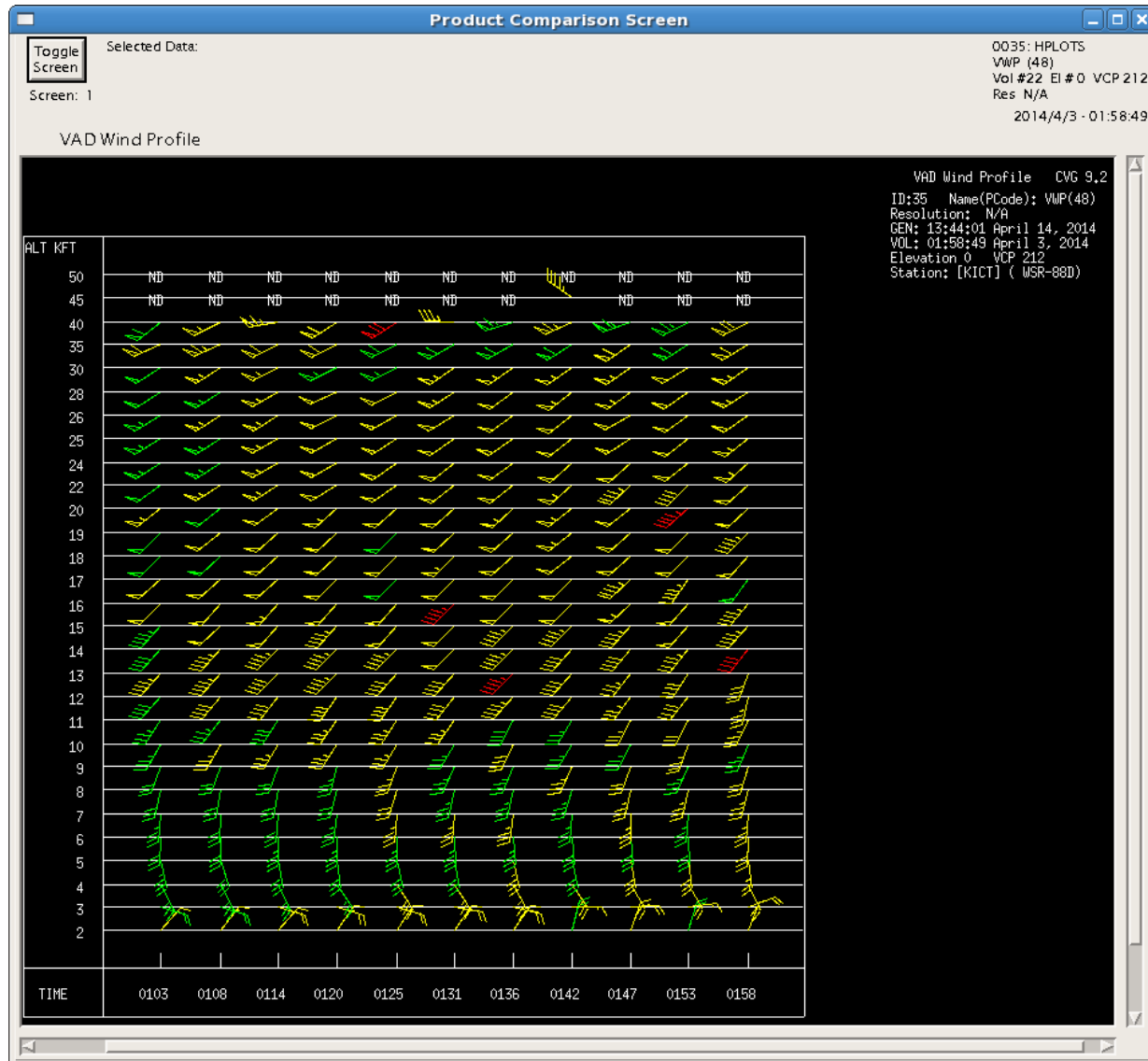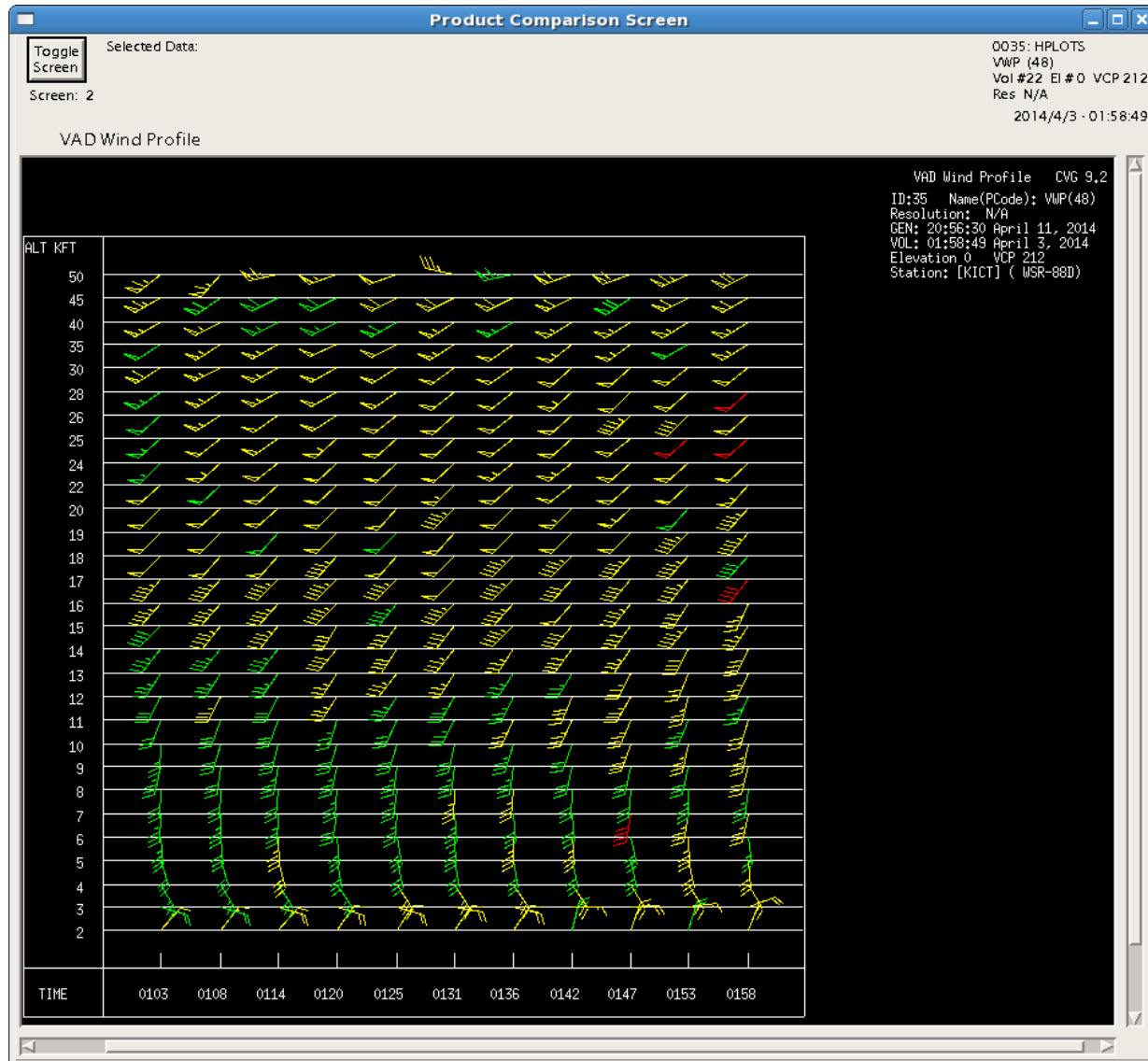
VWP Example 1

VWP No SAILS

VWP SAILS

VWP Example 2

VWP No SAILS

VWP SAILS

Summary

- Be aware of these algorithm impacts and utilize base data

- Still many advantages to the more frequent low-level updates associated with SAILS

- Discuss these algorithm impacts as well as the advantages of SAILS with your URC to decide best mode of operation

- Sites maintain the option to disable SAILS

- Fixes for algorithm impacts expected in Build 15.0 – to be deployed in late 2014

Reference

VCP 12 with SAILS Insertion Points

Elevation Angles (VCP 12)	VCP 12 Elevation Duration	Termination Angle = 19.5	AVSET Termination Angle = 15.6	AVSET Termination Angle = 12.5	AVSET Termination Angle = 10.0	AVSET Termination Angle = 8.0	AVSET Termination Angle = 6.4
0.5°	31 Sec	31 Sec	31 Sec	31 Sec	31 Sec	31 Sec	31 Sec
0.9°	31 Sec	31 Sec	31 Sec	31 Sec	31 Sec	31 Sec	31 Sec
1.3°	31 Sec	31 Sec	31 Sec	31 Sec	31 Sec	31 Sec	31 Sec
1.8°	15 Sec	15 Sec	15 Sec	15 Sec	15 Sec	15 Sec	15 Sec
0.5°						31 Sec	31 Sec
2.4°	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec
0.5°				31 Sec	31 Sec		
3.1°	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec
0.5°		31 Sec	31 Sec				
4.0°	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec
5.1°	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec
6.4°	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec	14 Sec
8.0°	13 Sec	13 Sec	13 Sec	13 Sec	13 Sec	13 Sec	
10.0°	13 Sec	13 Sec	13 Sec	13 Sec	13 Sec		
12.5°	13 Sec	13 Sec	13 Sec	13 Sec			
15.6°	13 Sec	13 Sec	13 Sec				
19.5°	13 Sec	13 Sec					
Duration	243 Sec	274 Sec	261 Sec	248 Sec	235 Sec	222 Sec	209 Sec
0.5 Elevation Update Times	243 Sec *	136 Sec and 138Sec *	136 Sec and 125 Sec *	122 and 126 Sec *	122 Sec and 113 Sec *	108 Sec and 114 Sec *	108 Sec and 101 Sec *

* Plus Retrace Time